OVERVIEW OF TRAVERSAL

Prior to discussing the prior art in detail, it is believed fair to characterize JP '425 as disclosing a recording paper and ink jet recording method employing the same where a base paper (fiber substance and filler) has added thereto a cation polymer. Whether or not JP '425 further involves the use of a water-soluble resin as the Examiner urges is not believed overly relevant to the rejection since it is quite clear that JP '425 no fashion teaches a sizing agent comprising a water-soluble soybean polysaccharide.

The issue posed is then would one of ordinary skill in the art be led to take the single constituent, a water-soluble soybean polysaccharide, from Yoshmura and use the same in JP '425?

Applicants, as will be explained in more detail, respectfully submit that this clearly would not be the case since the function of the water-soluble soybean polysaccharide in Yoshimura relates to elements present in Yoshimura which would be complete alien to and lacking from a recording paper as in the present invention.

Yoshimura describes three separate embodiments, one based on cellulose derivatives, one based on a cyclodextrin or cyclodextrin derivatives and one based on a water-soluble soy polysaccharide or water-soluble soy polysaccharide derivatives.

Focusing on the top of column 4 of Yoshimura, it is appropriate to view the function of the water-soluble polysaccharide (here after meant to include both the polysaccharide and derivatives). As explained in Yoshimura, the water-soluble soy polysaccharide easily absorbs to or links by hydrogen bonding to the surface of the metallic powder pigment and to the surface of

the colorant. Thus, the water-soluble soy polysaccharide attaches the colorant to the metallic powder pigment. As a result, a writing portion with a vivid metallic color can be obtained.

The only reason for using the water-soluble soy polysaccharide in the combination of Yoshimura, namely in the combination of a metallic powder pigment, a colorant, water and a water-soluble organic solvent and further including a natural polysaccharide (Yoshimura, column 2, lines 1-10) is that the water-soluble soy polysaccharide interacts with the metallic powder pigment and the colorant. If the same were not present, there would no motivation to use the water-soluble soy polysaccharide of Yoshimura.

Since the present invention does not involve the use of a metallic power pigment or a colorant which is to be attached to the metallic power pigment, the same being in a complex natural polysaccharide binder system clearly there is no motivation to use the Yoshimura water-soluble soy polysaccharide in the JP '425 system, and the Examiner's rejection is believed fatally flawed, as now explained.

DETAILED TRAVERSAL

The recording paper defined in claim 17 of the present application is a paper which has been impregnated or coated with the sizing agent disclosed in the present application at the stage of a raw paper or in a paper-producing process. The sizing agent comprising a water-soluble soybean polysaccharide as such may be added to a paper slurry in advance as an inner sizing agent, though such is not preferable because such requires a large amount of sizing agent to exhibit sufficient effects (see page 12, lines 23-28 of the specification).

Since the water-soluble soybean polysaccharide is a water-soluble polysaccharide

extracted from soybean or soybean extraction residue and subjected to desalinating purification, the sizing agent comprising a water-soluble soybean polysaccharide of the present invention is quite valuable from the viewpoint of avoiding environmental pollution.

In contrast to claim 17 of the present application, JP '425 discloses, as described in the specification of the present application, at page 2, a plain paper for inkjet printing, coated with a coating composition liquid comprising as effective components an artificial cationic polymer and a water-soluble resin, such as an artificial cationic polymer, having as effective constituents polymerized substances consisting of the skeleton of a (meta)acrylamide alkylquarternary ammonium salt having a benzyl group, to improve the water resistance of a picture on inkjet recording (see English abstract attached hereto).

However, JP '425 is completely silent regarding a sizing agent containing a water-soluble soybean polysaccharide as an indispensable component for providing a recording paper comprising a sizing agent as such. As a consequence, one skilled in the art referring to JP'425 would not easily reach the invention as recited in claim 1 7, which mandatorily requires "A recording paper comprising fibrous pulp and a sizing agent comprising a water-soluble soybean polysaccharide", and, accordingly, clearly the present claims are not obvious over JP'425 alone.

The rejection is, however, a combination rejection, the Examiner stating in Paragraph *5,* lines 14-18, of the Office Action that:

> "It would have been obvious to add to the composition of JP'425, the polysaccharide of Yoshimura with the expectation of(a) improving resistance of the composition (as a size) to water (b) to maintain the density of color by minimizing

penetration of colorant particles into substrate such as paper and (c) to enhance stability of viscosity. It would also have been obvious to add surfactant for improving wetting."

While it is not entirely clear whether the Examiner is stating that the independent addition of the soy polysaccharide of Yoshimura to the composition of JP '425 would result in one skilled in the art expecting effects (a) to (c) which the Examiner mentions above, Applicants assert that the combination of JP '425 and Yoshimura does not render the claims herein obvious for the following reasons.

Yoshimura discloses an aqueous metallic ink composition comprising a metallic powder pigment, a colorant, water and a water-soluble organic solvent, the ink composition further including a natural polysaccharide and at least one compound selected from the group consisting of cellulose derivatives, a cyclodextrin, cyclodextrin derivatives, a water-soluble soy (soybean) polysaccharide and water-soluble soy (soybean) polysaccharide derivatives (see column 2, lines 3-10).

In one embodiment, the metallic powder pigment must be coated by cellulose derivatives which are used together with the natural polysaccharide so that cellulose derivatives can act effectively on the metallic powder pigment, whereby a carbonyl group and/or a hydroxyl group of the cellulose derivatives acts on the metallic powder pigment and the hydrophilic characteristics of the metallic powder pigment increase. Thus, the intimacy (linkage) between the metallic powder pigment and the colorant becomes strong. As a result, the colorant is caught or absorbed by the metallic powder pigment, and then the absorption of the colorant into the

absorbent surface (such as a drawing paper) is restrained (emphasis added) (see column 2, lines 29-40).

Yoshimura also teaches an embodiment where a metallic powder pigment comprising at least a metallic powder pigment, a colorant, water and water-soluble organic solvent, further including a natural polysaccharide, and a water-soluble soy polysaccharide or water-soluble soy polysaccharide derivatives (column 3, lines 56-61). The metallic pigment is preferably coated by the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives which are used together with the natural polysaccharide, so that the water-soluble polysaccharide or water-soluble polysaccharide derivatives can act effectively on the metallic powder pigment. Thus, the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives is easily absorbed in or links by hydrogen bonding to the surface of the metallic powder pigment and the surface of the colorant, whereby the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives attaches the colorant to the metallic powder pigment (emphasis added) (see column 4, lines 1 -19).

Quite clearly the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives of Yoshimura cannot be used independently, but most used together with a natural polysaccharide selected from the group consisting of a microbial polysaccharide or derivatives thereof, a water-soluble vegetable polysaccharide or derivatives thereof, a water-soluble animal polysaccharide or derivatives thereof (see column 4, lines *59-63).*

Further, it is important to appreciate that the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives of Yoshimura may be added as a binder component for the

metallic powder pigment and the colorant in order to enable the colorant to fix on the metallic powder pigment, particularly on an aluminum powder pigment, thereby restraining viscosity changes caused by the natural polysaccharide so that viscosity stability is insured (emphasis added; see column 6, lines 51-59). Specifically, in Examples 12-13 of Yoshimura, water-soluble soy polysaccharides 1 and 2 are assigned to Binder Resin for Coloring (emphasis added) (see column 22, lines 40-48, column 23, Table *5)*.

The aqueous metallic ink composition of Yoshimura containing both the natural polysaccharide and the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives of Yoshimura makes the colorant difficult to penetrate into the absorbent surface (such as a drawing paper), whereby a decrease in density of the color developed at the ink film can be restrained (see column 3, line 62 to column 4, line 1). Per Yoshimura, in a further embodiment the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives can be replaced with a cyclodextrin or cylcodextrin derivatives having hydroxyl groups. A hydroxyl group of the cyclodextrin or cyclodextrin derivatives acts on the metallic pigment powder and the hydrophilic characteristics of the metallic powder pigment are increased in the same manner as with the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives (see column 3, lines 6-31).

Thus, per Yoshimura the metallic powder pigment is coated by cellulose derivatives, a cyclodextrin or cyclodextrin derivatives or the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives so that the influence of metallic ions on the natural polysaccharide can be restrained or prevented by controlling the elution of metallic ion into the ink composition. Even though the composition contains cellulose derivatives, the aqueous metallic ink

composition has high stability in the dispersion because cellulose derivatives are used with the natural polysaccharide (see column 2, lines *55-63).*

It is important to note that the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives of Yoshimura is easily absorbed in or links by hydrogen bonding to the surface of the metallic powder pigment and the surface of the colorant, and the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives attaches the colorant to the metallic powder pigment. As a result, a written area with a vivid metallic color can be obtained. The aqueous metallic ink composition of Yoshimura thus has the ability to restrain changes in viscosity and maintain the stability of the ink composition with the passage of time because of the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives (see column 4, lines 7-19).

This means that effects (a) to (c) mentioned by the Examiner might be achieved by the function of the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives as a binder in the aqueous metallic ink composition of Yoshimura containing both the natural polysaccharide and the water-soluble soy polysaccharide or water-soluble polysaccharide derivatives, which function to coat the metallic powder so that the colorant has difficulty in penetrating into a drawing paper.

It is quite clear that the polysaccharide of Yoshimura does not function as a sizing agent in the Yoshimura aqueous metallic ink composition. Thus, there would be no motivation for one of ordinary skill in the art to use a component from Yoshimura, specifically the Yoshimura polysaccharide, with a reasonable expectation of achieving effects (a) to (c) as mentioned by the Examiner.

Yoshimura thus does not teach of suggest a recording paper impregnated or coated with a sizing agent comprising a water-soluble soybean polysaccharide at the stage of a raw paper or in a paper-producing process, and, as a consequence, Yoshimura in no fashion teaches or suggests a recording paper comprising a water-soluble soybean polysaccharide as claimed herein.

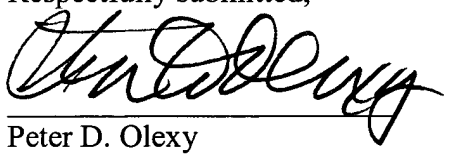
Accordingly, even if JP '425 were to be combined with Yoshimura, one of ordinary skill in the art would not be let to the present invention.

Withdrawal of the art rejection is requested.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Peter D. Olexy
Registration No. 24,513

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

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